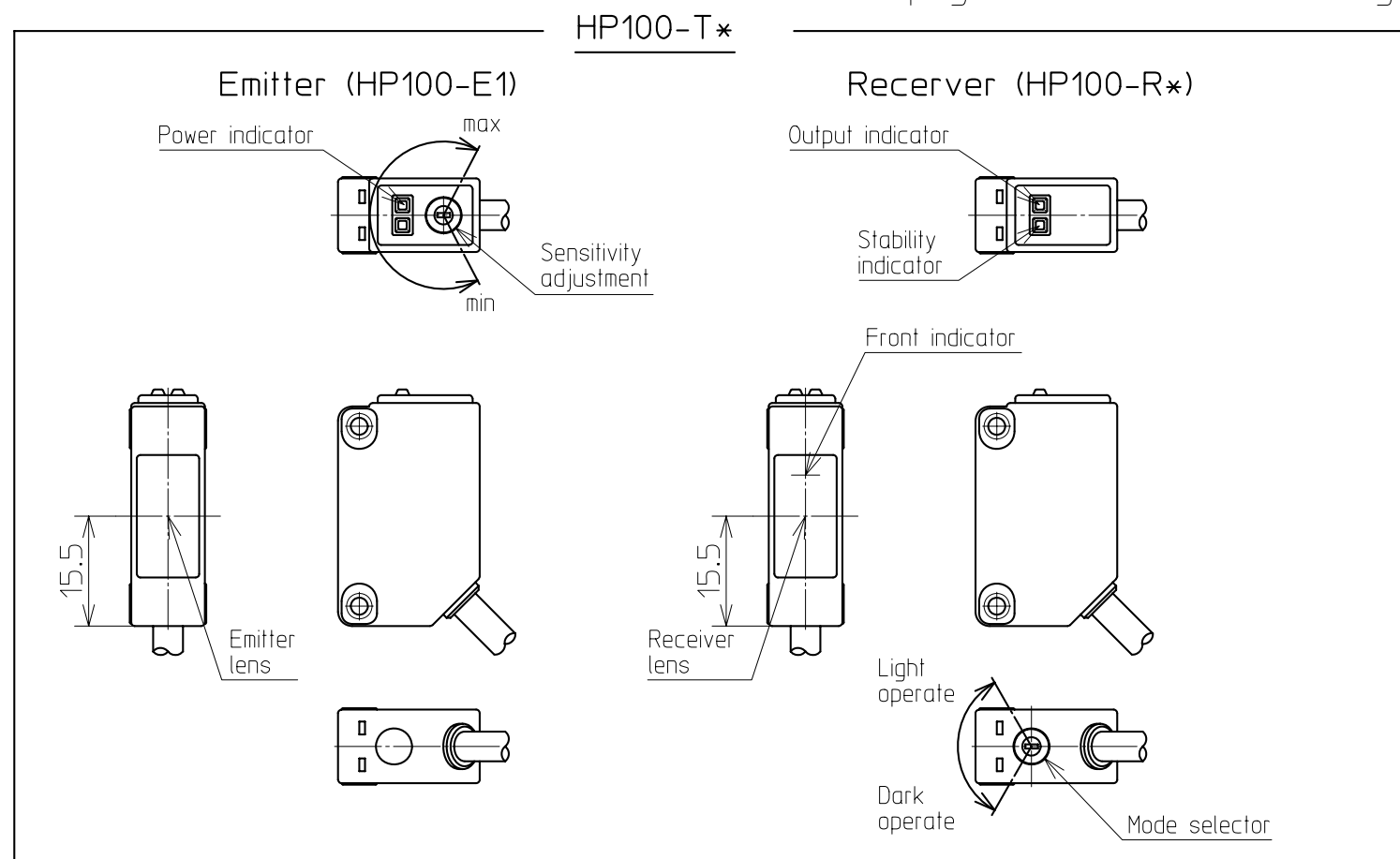
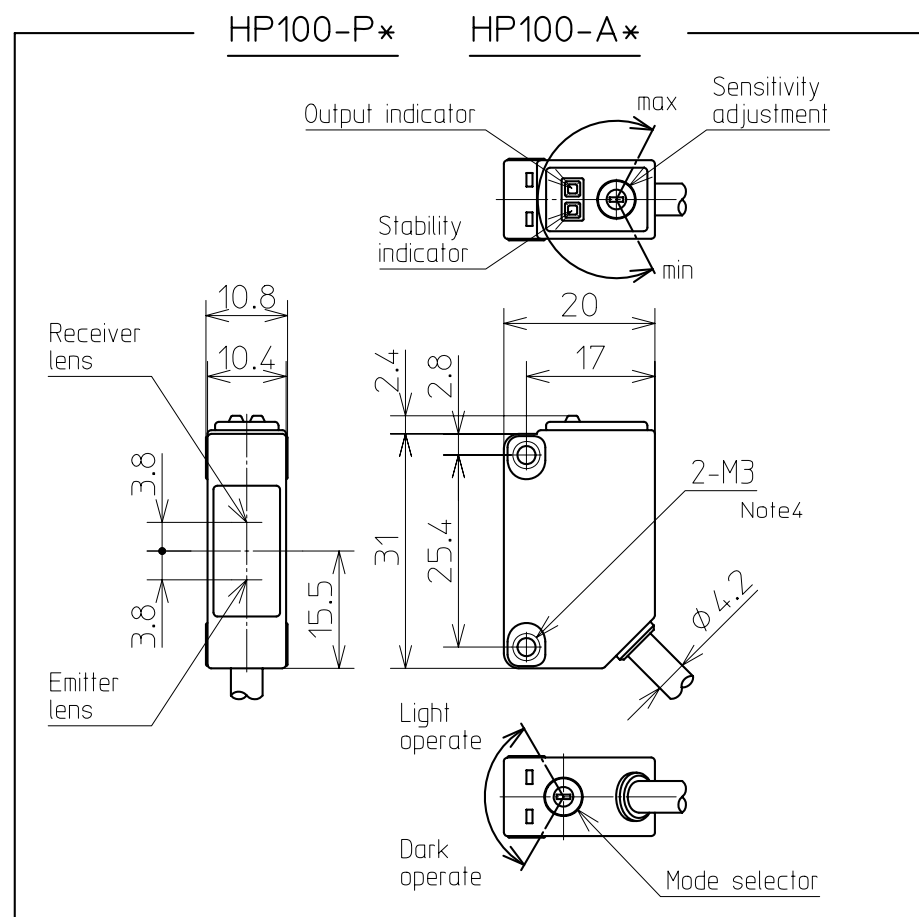


Polarized retroreflective scan	Diffuse scan	Through scan			Output
		Set	Emitter	Receiver	
HP100-P1	HP100-A1	HP100-T1	HP100-E1	HP100-R1	Open collector of NPN transistor
HP100-P2	HP100-A2	HP100-T2	HP100-E1	HP100-R2	Open collector of PNP transistor

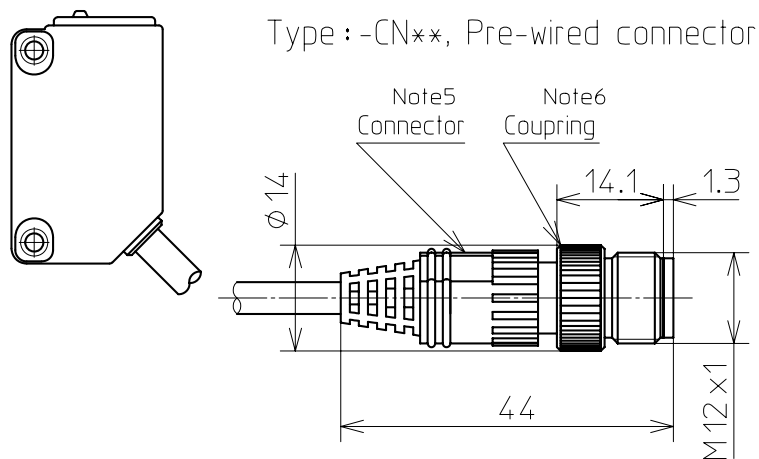
DIMENSIONS

See page2 for details of catalog listing.



Note 1. MATERIAL (Photoelectric switch) Case: PBT resin/Black  
Cover: PMMA resin  
(Connector) Body: Polyester elastomer/Gray  
Pin: Brass Au plated  
Coupring: Brass Ni plated

- 2. Cord: Oil Resist 0.2mm<sup>2</sup>  
Color Gray (except through scan emitter)  
Black (through scan emitter only)
- 3. Lens diameter:  $\phi 7.3$
- 4. Please tighten the mounting screw at the torque less than 0.5N·m.  
Using the screw that enters the product more than 7mm.
- 5. Please use the "PA5" series (DC type) of our VA connector.
- 6. Screw the coupring by hand.(0.4 TO 0.6N·m)
- 7. UL LISTED PRODUCT  
UL FILE No.E252012  
ENCLOSURE TYPE 1  
RATINGS POWER SUPPLY: 12/24VDC, CLASS 2  
OUTPUT: I max. 100mA  
MAXIMUM AMBIENT TEMPERATURE: 60°C



Cord length

Catalog listing	Cord length	Wiring type
HP100-**-LP5	500min	with cord
HP100-**-L05	5,000min	
HP100-**-CN03	300min	with pre-wired connector
HP100-**-CN05	500min	
HP100-**-CN1	1,000min	

$\leq 3$	$\leq 6$	$\leq 30$	$\leq 120$
$\pm 0.2$	$\pm 0.3$	$\pm 0.5$	$\pm 0.8$

記入のない公差 TOL. UNLESS NOTED  
REFER ABOVE TABLE FOR TOL. UNLESS NOTED.

作成DR. Y.Mochizuki April.28'05	検図CHK. T.Nakao May.30'05	認可APPD. S.Suzuki May.31'05	日付DATE May.31'05	図番 NO.	改番REV.						
<table border="1"> <tr> <td>尺度 SCALE</td> <td>1:1</td> </tr> </table>				尺度 SCALE	1:1	<table border="1"> <tr> <td>形番 MODEL</td> <td>HP100 series</td> </tr> <tr> <td>名称 NAME</td> <td>Photoelectric switch</td> </tr> </table>		形番 MODEL	HP100 series	名称 NAME	Photoelectric switch
尺度 SCALE	1:1										
形番 MODEL	HP100 series										
名称 NAME	Photoelectric switch										
02	EC006-0435	Feb. 23 '06	T.Koike	T. Nakao							
01	EC005-1045	Dec. 15 '05	T. Nakao	T. Koike							
改番 REV.	来歴 RECORD	日付 DATE	担当 BY	検閲 APPD.							

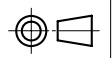
SR. No.

Yamatake Corporation

製品仕様書  
SPECIFICATIONS

Catalog listing

Polarized retroreflective scan	Diffuse scan	Through scan			Cord length	Wiring type	Output	Packing
		Set	Emitter	Receiver				
HP100-P1-LP5	HP100-A1-LP5	HP100-T1-LP5	HP100-E1-LP5	HP100-R1-LP5	500min.	with cord	Open collector of NPN transistor	Packing 1 unit (In case of Through scan set, Emmitter and Receiver are included)
HP100-P1	HP100-A1	HP100-T1	HP100-E1	HP100-R1	2000min.			
HP100-P1-L05	HP100-A1-L05	HP100-T1-L05	HP100-E1-L05	HP100-R1-L05	5000min.			
HP100-P2-LP5	HP100-A2-LP5	HP100-T2-LP5	HP100-E1-LP5	HP100-R2-LP5	500min.			
HP100-P2	HP100-A2	HP100-T2	HP100-E1	HP100-R2	2000min.			
HP100-P2-L05	HP100-A2-L05	HP100-T2-L05	HP100-E1-L05	HP100-R2-L05	5000min.			
HP100-P1-CN03	HP100-A1-CN03	HP100-T1-CN03	HP100-E1-CN03	HP100-R1-CN03	300min.	with pre-wired connector	Open collector of NPN transistor	
HP100-P1-CN05	HP100-A1-CN05	HP100-T1-CN05	HP100-E1-CN05	HP100-R1-CN05	500min.			
HP100-P1-CN1	HP100-A1-CN1	HP100-T1-CN1	HP100-E1-CN1	HP100-R1-CN1	1000min.			
HP100-P2-CN03	HP100-A2-CN03	HP100-T2-CN03	HP100-E1-CN03	HP100-R2-CN03	300min.			
HP100-P2-CN05	HP100-A2-CN05	HP100-T2-CN05	HP100-E1-CN05	HP100-R2-CN05	500min.			
HP100-P2-CN1	HP100-A2-CN1	HP100-T2-CN1	HP100-E1-CN1	HP100-R2-CN1	1000min.			
HP100-P1-LP5-Q	HP100-A1-LP5-Q	HP100-T1-LP5-Q	HP100-E1-LP5-Q	HP100-R1-LP5-Q	500min.	with cord	Open collector of NPN transistor	Packing 10 units (In case of Through scan set, Emmitter and Receiver are included each 10 units)
HP100-P1-Q	HP100-A1-Q	HP100-T1-Q	HP100-E1-Q	HP100-R1-Q	2000min.			
HP100-P1-L05-Q	HP100-A1-L05-Q	-	HP100-E1-L05-Q	HP100-R1-L05-Q	5000min.			
HP100-P2-LP5-Q	HP100-A2-LP5-Q	HP100-T2-LP5-Q	HP100-E1-LP5-Q	HP100-R2-LP5-Q	500min.			
HP100-P2-Q	HP100-A2-Q	HP100-T2-Q	HP100-E1-Q	HP100-R2-Q	2000min.			
HP100-P2-L05-Q	HP100-A2-L05-Q	-	HP100-E1-L05-Q	HP100-R2-L05-Q	5000min.			
HP100-P1-CN03-Q	HP100-A1-CN03-Q	HP100-T1-CN03-Q	HP100-E1-CN03-Q	HP100-R1-CN03-Q	300min.	with pre-wired connector	Open collector of NPN transistor	
HP100-P1-CN05-Q	HP100-A1-CN05-Q	HP100-T1-CN05-Q	HP100-E1-CN05-Q	HP100-R1-CN05-Q	500min.			
HP100-P1-CN1-Q	HP100-A1-CN1-Q	HP100-T1-CN1-Q	HP100-E1-CN1-Q	HP100-R1-CN1-Q	1000min.			
HP100-P2-CN03-Q	HP100-A2-CN03-Q	HP100-T2-CN03-Q	HP100-E1-CN03-Q	HP100-R2-CN03-Q	300min.			
HP100-P2-CN05-Q	HP100-A2-CN05-Q	HP100-T2-CN05-Q	HP100-E1-CN05-Q	HP100-R2-CN05-Q	500min.			
HP100-P2-CN1-Q	HP100-A2-CN1-Q	HP100-T2-CN1-Q	HP100-E1-CN1-Q	HP100-R2-CN1-Q	1000min.			

作成DR. T.Koike Feb.23 '06		尺度SCALE ~	記入のない公差 TOL. UNLESS NOTED ~
検図CHK. T.Nakao Feb.24 '06	形番 MODEL	HP100 series	
認可APPD. S.Suzuki Feb.28 '06	名称 NAME	Photoelectric switch	
日付DATE	図番 NO.	AD42920E	改番REV. 02

02	~	~	~	~
改番 REV.	来歴 RECORD	: 日付 DATE	担当 BY	検閲 APPD.

SP. No.

Yamatake Corporation

製品仕様書  
SPECIFICATIONS

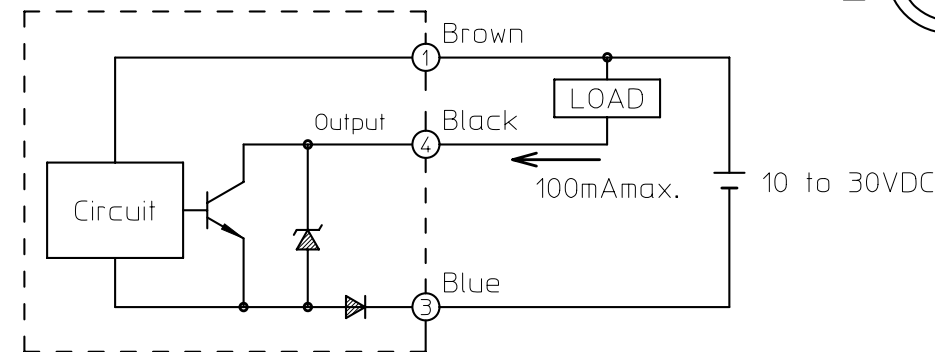
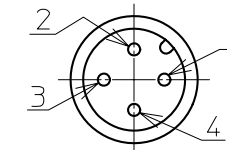
SPECIFICATIONS

Catalog listing	HP100-P1	HP100-P2	HP100-T1	HP100-T2	HP100-A1	HP100-A2
Scanning type	Polarized retroreflective scan		Through scan		Diffuse scan	
Supply voltage	10 to 30VDC (ripple 10% max.)					
Current consumption	13mA max.		27mA max. Emitter:16mA max. Receiver:11mA max.		16mA max.	
Scanning distance	0.05 to 5m (Reflector:FE-RR8)		15m		1m	
Target	Opaque materials more than $\phi 80$ (Reflector:FE-RR8)		Opaque materials more than $\phi 9$		White paper (KODAK Graycard 90%) 300X300mm	
Operating angle	Sensor : 0.5 to 10° / Reflector : 20° min.		2 to 20°			
Hysteresis						20% max. of scanning distance
Operating mode	Convertible light operated / dark operated (with mode selector)					
Output mode	HP100-*1 : Open collector of NPN transistor (N-MOS FET is used for output device) HP100-*2 : Open collector of PNP transistor (P-MOS FET is used for output device)					
Output	Load current:100mA (resistive load),Output withstand voltage:30V,Saturation voltage:3V max. (at 100mA load current) Short circuit protection					
Response time	500 $\mu$ s max.					
Light source	Red LED			Infrared LED		
Indicator	except HP100-E1 : Orange 'ON' with output / Green 'ON' with atable light and stable dark HP100-E1 : Orange 'ON' with power on HP100-R* : Front indicator Red 'ON' with light receiving					
Ambient light	Incandescent light : 10,000lx max. / Sunlight : 40,000lx max.					
Operating temperature	-30 to +60°C (without condensation)					
Storage temperature	-40 to +70°C (without condensation)					
Humidity	35 to 85%RH (without condensation)					
Insulation resistance	20M $\Omega$ min. (at 500VDC)					
Dielectric strength	1000VAC 50/60Hz 1minute					
Vibration	10 to 55Hz 1.5mm double amplitude 2hours in each direction of X,Y,Z					
Shock	500m/s <sup>2</sup> 10times in each direction of X,Y,Z					
Sealing	IP67 (IEC standard)					
Weight	Approx.55g (only sensor with cable 2m)					
Protection	False pulse protection (8ms typ.) wrong wiring protection					
ELECTROSTATIC DISCHARGES (ESD)	LEVEL 3 (EN61000-4-2:1995/A1:1998/A2:2001)					
RADIATED RADIO-FREQUENCY ELECTROMAGNETIC FIELDS (RS)	LEVEL 3 (EN61000-4-3:2001/A1:2002)					
ELECTRICAL FAST TRANSIENTS (EFT)	LEVEL 3 (EN61000-4-4:1995/A1:2001/A2:2001)					
CONDUCTED SUSCEPTIBILITY (CS)	LEVEL 3 (EN61000-4-6:1996/A1:2001)					

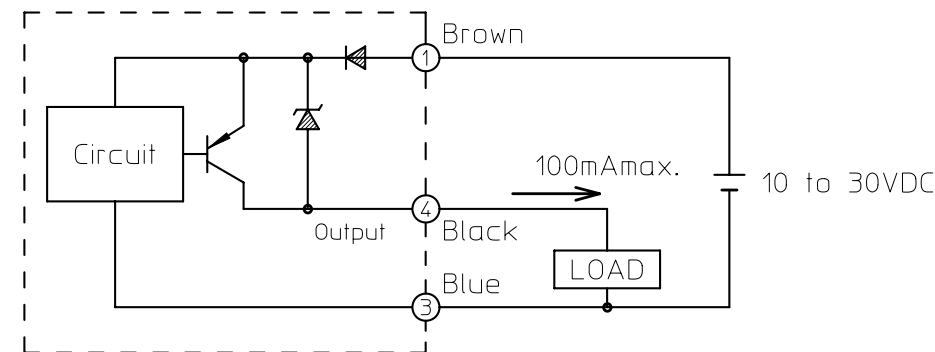
WIRING

NPN Type : Polarized retroreflective scan  
Through scan receiver  
Diffuse scan

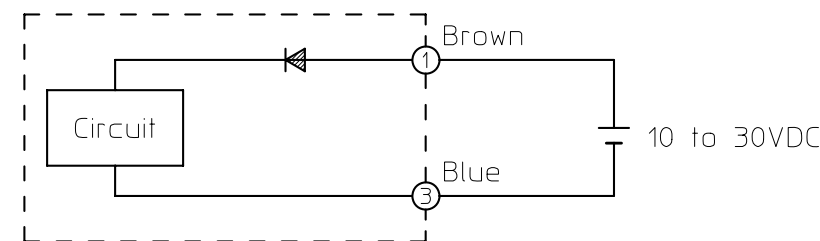
pre-wired connector  
pin layout



PNP Type : Polarized retroreflective scan  
Through scan receiver  
Diffuse scan



Through scan emitter



頁改番  
PAGE REV.

02	~	~	~	~
01	~	~	~	~
改番 REV.	来歴 RECORD	: 日付 DATE	担当 BY	検閲 APPD.

作成DR. Y.Mochizuki April,28'05	検図CHK. T.Nakao May,30'05	認可APPD. S.Suzuki May,31'05	日付DATE May,31'05	形番 MODEL HP100 series	名称 NAME Photoelectric switch	図番 NO. AD42920E	改番REV. 02	3/
尺度SCALE				記入のない公差TOL. UNLESS NOTED				

SR. No.

# Yamatake Corporation

## 製品仕様書 SPECIFICATIONS

### Product revision change record

	Date	Catalog listing	Product rev. No.	Content of change
1	11.22.'05	All	01	Add UL and EMC specifications. Change current consumption.

### Product revision

The 2-digit product revision number is shown after the country of origin on the case.

Example: MADE IN CHINA 01



As for through scan, product revision number is applied on each emitter(HP100-E\*) and receiver(HP100-R\*).  
Revision number is not applied on set listings(ex. HP100-T\*)

Catalog listing	Product rev. No.
HP100-P1 (-Q)	01
HP100-P1-L * (-Q)	01
HP100-P1-CN * (-Q)	01
HP100-P2 (-Q)	01
HP100-P2-L * (-Q)	01
HP100-P2-CN * (-Q)	01
HP100-A1 (-Q)	01
HP100-A1-L * (-Q)	01
HP100-A1-CN * (-Q)	01
HP100-A2 (-Q)	01
HP100-A2-L * (-Q)	01
HP100-A2-CN * (-Q)	01
HP100-E1 (-Q)	01
HP100-E1-L * (-Q)	01
HP100-E1-CN * (-Q)	01
HP100-R1 (-Q)	01
HP100-R1-L * (-Q)	01
HP100-R1-CN * (-Q)	01
HP100-R2 (-Q)	01
HP100-R2-L * (-Q)	01
HP100-R2-CN * (-Q)	01

作成DR. T.Nakao Dec.15 '05		尺度 SCALE ~	記入のない公差 TOL. UNLESS NOTED ~
検図CHK. T.Koike Dec.16 '05	形番 MODEL	HP100 series	
認可APPD. S.Suzuki Dec.19 '05	名称 NAME	Photoelectric switch	
日付 DATE	図番 NO.	AD42920E	改番REV. 4/02

頁 PAGE	改番 REV.	改番 REV.	来歴 RECORD	: 日付 DATE	担当 BY	検閲 APPD.
-----------	------------	------------	--------------	--------------	----------	-------------

SP.NO.

**Yamatake Corporation**

製品仕様書  
**SPECIFICATIONS**

“RESTRICTIONS ON USE”

This product has been designed, developed and manufactured for general-purpose application in machinery and equipment.

Accordingly, when used in applications outlined below, special care should be taken to implement a fail-safe and/or redundant design concept as well as a periodic maintenance program.

- Safety devices for plant worker protection
- Start/stop control devices for transportation and material handling machines
- Aeronautical/aerospace machines
- Control devices for nuclear reactors

Never use this product in applications where human safety may be put at risk.

1	00	00	First issue	12-2-02	Harada	Miura
頁	改番	改番	来歴	日付	担当	検閲
	REV.	REV.	RECORD	DATE	BY	APPD.